Trend Study 1-2-01

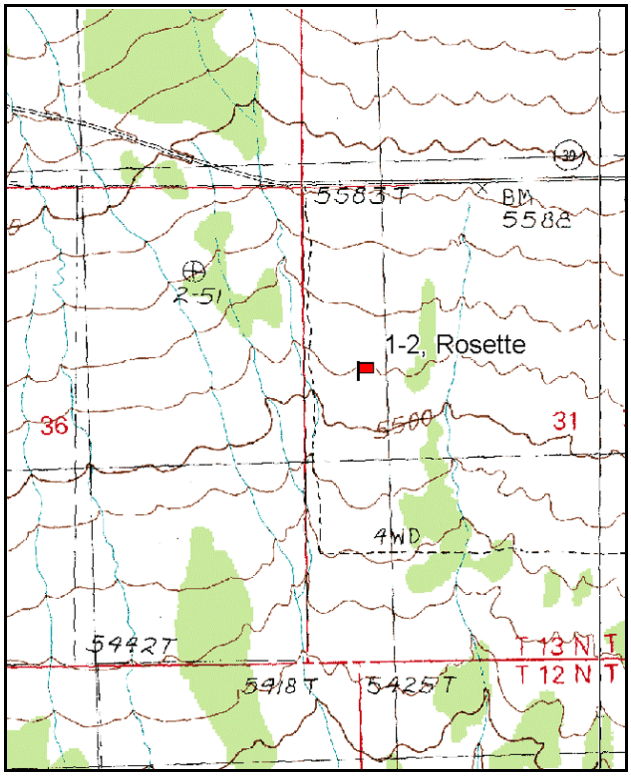
Study site name: Rosette . Vegetation type: Big Sagebrush .

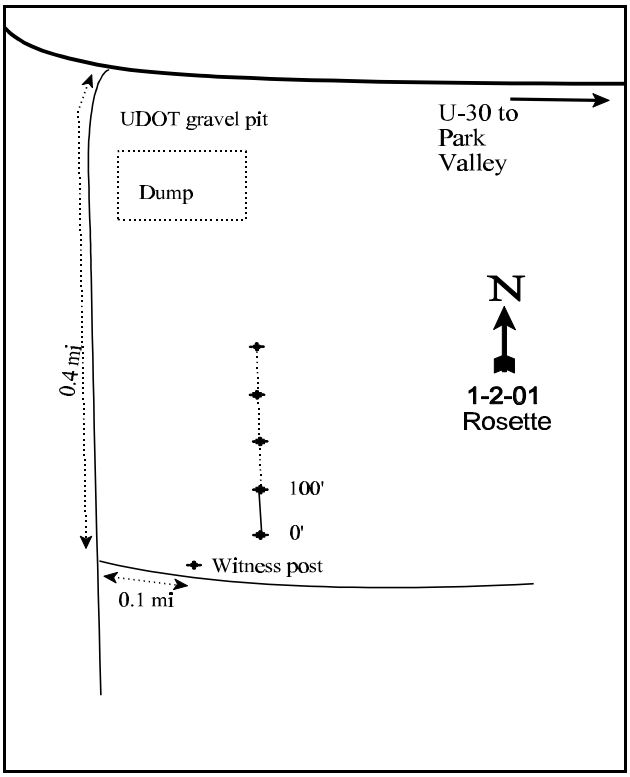
Compass bearing: frequency baseline 0 degrees magnetic.

Frequency belt placement line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From Rosette, Utah and mile marker 51, proceed northeast on U-30 approximately 1.3 miles and turn right. Proceed through the Utah Department of Transportation gravel dump and find a dirt road on the west side of gravel pile area. Proceed south on this road for 0.4 miles (passing a left fork) to a left fork. Turn left (i.e., east) and proceed 0.1 miles to a witness post on the left side of the road and stop. From the witness post take a bearing of 9 degrees magnetic and walk 22 paces to the 0-foot stake of the frequency baseline. The 0-foot stake is wired with a red browse tag, number 7906.





Map Name: Rosette

Diagrammatic Sketch

Township 13N , Range 13W , Section 31

UTM 4631263 N, 301911E

DISCUSSION

Trend Study No. 1-2

The Rosette trend study is located approximately two miles east-southeast of Rosette on critical deer winter range. This area is a Wyoming big sagebrush type which also contains some scattered Utah juniper and a few pockets of black sagebrush. Judging from browse utilization and pellet group frequency, deer use through the years has ranged from moderate to heavy. Cattle also graze the area and were present at the time the study was initially established. A pellet group transect read on the site in 2001estimated 26 deer days use/acre (65 days use/ha). This area is within the Hirschi allotment which is assigned for 25 cattle with a season of use from October 16 through December 31. Elevation is 5,480 feet on gently sloping to almost level terrain with a southerly exposure.

Soil texture is a clay loam with a neutral soil reaction (7.3 pH). The amount of phosphorus in the soil (7.2 ppm) could be a limiting factor because it has been shown that amounts below 10 ppm can limit plant growth and/or development. The soils have been alluvially deposited. There is minimal rockiness and the soil is moderately deep with an average effective rooting depth estimated at just over 15 inches. The ratio of protective ground cover from vegetation and litter compared to percent bare ground is relatively poor, yet erosion does not appear to be significant at this time because of nearly level terrain. However, the erosion condition classification was determined to be moderate in 2001.

The key browse species is Wyoming big sagebrush. Density estimates have varied since 1984, however the methods were slightly modified by increasing the sample size by more than three times in 1992. In terms of forage production, Wyoming sagebrush accounts for respectively 57% and 71% of the browse cover in 1996 and 2001. The sagebrush type in the 1970 Range Inventory was determined to have an air dry estimated production of 2,010 pounds to the acre. Utilization was determined to be heavy in 1984 with 52% of the population displaying heavy use. By 1990, only 11% of the sagebrush was classified as heavily hedged. Use was mostly light in 1996 and 2001. Percent decadency rose in 1990 to 77% with poor vigor expressed on 48% of those shrubs. By 1996, percent decadency declined to 29%. Currently, only 18% were classified as decadent. The bulk of plants exhibiting poor vigor were classified as decadent. Dead plants were first inventoried during the 1996 reading. The average number of dead sagebrush in 1996 and 2001 is 1,650 plants/acre. This would equate to about one dead plant to every three live plants. Poor vigor and the high number of dead plants is likely the result of intraspecific competition combined with drought, not a result of heavy use. Age class analysis from 1996 data suggested an expanding population due to a large number of seedlings and young. However in 2001, the proportion of seedlings and young within the population have been greatly reduced. Even with a slight decrease in the population in 2001, there are more than enough replacements (young age class) to make up for the slight decrease in overall numbers.

Other shrubs found on the site which produce additional forage consist of small numbers of black sagebrush and rubber rabbitbrush. Narrowleaf low rabbitbrush, a low growing increaser, has a current (‘01) density of 3,160 plants/acre and has an age class structure of a stable to slightly decreasing population. Monitoring of this species abundance will be an important trend parameter in the future.

Herbaceous plants are considerably more diverse and important as forage than at the Kelton site (#1-1). Although percent cover and total herbaceous density are much lower here, cheatgrass is not nearly as abundant. Currently (‘01), it only accounts for 28% of the grass cover. Perennial grasses are much more abundant on this site than at Kelton. Common species include: thickspike wheatgrass, Sandberg bluegrass, and bottlebrush squirreltail. Forbs are diverse yet produce only a little over 2% total cover. Common perennial forb species include hooker balsamroot, hoods phlox, and cryptantha.

1984 APPARENT TREND ASSESSMENT

Vegetative trend appears stable, however, the heavy forage utilization could produce changes in shrub composition and density. Herbaceous conditions are only fair, but are not noticeably declining. Soil trend appears stable to slightly down. Signs of soil movement are apparent, but the nearly level terrain prevents rapid soil loss.

1990 TREND ASSESSMENT

Trend for soil is stable. Bare ground cover values increased slightly from 42% to 50%, but basal vegetative cover nearly doubled. Trend for browse is down. Wyoming big sagebrush on this site had an estimated 25% canopy cover in 1990. However, it has declined since the last reading from 6,332 plants/acre in 1984 down to 3,799 plants per acre in 1990. Percent decadency has also increased from 23% to 77% . Very few seedlings and no young sagebrush were found on site in 1990. Recent utilization of the sagebrush has been light to moderate. In contrast, the narrowleaf low rabbitbrush has increased it's density by 17%. Trend for the herbaceous understory is slightly up. Sandberg bluegrass and squirreltail have increased in nested frequency and quadrat frequency values since 1984. Sum of nested frequency of perennial forbs has also increased slightly

TREND ASSESSMENT
soil - stable (3)
browse - down (1)
herbaceous understory - up slightly (4)

1996 TREND ASSESSMENT

The soil trend is still improving due to an increase in litter cover and a significant decline in bare ground (50% to 22%). This combined with the level terrain limit erosion. Trend for the key browse species, Wyoming big sagebrush, has also improved since 1990. Density has increased from 3,799 to 6,160 plants/acre, percent decadence has declined from 77% to 29%, and vigor is good on all but 31% of the decadent shrubs. Age class composition indicates an expanding population with 2,620 seedlings/acre and 3,040 young plants/acre estimated. Cover was estimated at 14% and a further increase in sagebrush cover and density will negatively effect understory plants. Trend for the herbaceous understory is stable. Sum of nested frequency for grasses declined slightly, while the sum of nested frequency of forbs increased slightly. Sum of nested frequency of thickspike wheatgrass and bottlebrush squirreltail increased significantly.

TREND ASSESSMENT
soil - up (5)
browse - up (5)
herbaceous understory - stable (3)

2001 TREND ASSESSMENT

The soil trend is considered stable at this time. Percent litter cover and bare ground are similar with little change. The ratio of protective ground cover to bare soil has remained almost the same since 1996. This combined with the level terrain limit erosion even though the erosion condition was classified as moderate. Trend for the key browse species, Wyoming big sagebrush, has remained fairly stable with only a slight decrease in density. There are more than enough young plants to maintain the current population. Percent decadence has declined from 77% in 1990 to 29% in 1996 and 18% in 2001. Vigor is good on all but about 40% of the decadent shrubs. Age class analysis indicates a slightly expanding population with the number of

young plants outnumbering the estimated number of dead plants within the population. Cover for Wyoming sagebrush has increased from an estimated 14% to 18% in 2001. A further increase in sagebrush cover could negatively affect the herbaceous understory. Trend for the herbaceous understory appears stable. Sum of nested frequency for perennial grasses is stable, while sum of nested frequency for perennial forbs slightly declined. However, the perennial forbs make up less than 2% cover or less than 15% of the total herbaceous cover.

TREND ASSESSMENT
soil - stable, but only fair condition (3)
browse - stable (3)
herbaceous understory - stable (3)

HERBACEOUS TRENDS --
Herd unit 01 , Study no: 2

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
G	Agropyron smithii	73	51	67	83	31	23	24	30	.57	1.12
G	Agropyron spicatum	a-	a1	b14	a-	-	1	6	-	.05	-
G	Bromus tectorum (a)	-	-	b259	a227	-	-	84	77	3.20	3.66
G	Oryzopsis hymenoides	1	2	-	1	1	2	-	1	-	.00
G	Poa secunda	180	231	189	212	70	83	71	78	5.15	7.40
G	Sitanion hystrix	a21	b74	b70	a29	10	35	30	15	.61	.68
G	Vulpia octoflora (a)	-	-	3	-	-	-	1	-	.00	-
Total for Annual Grasses		0	0	262	227	0	0	85	77	3.21	3.66
Total for Perennial Grasses		275	359	340	325	112	144	131	124	6.38	9.22
Total for Grasses		275	359	602	552	112	144	216	201	9.59	12.88
F	Agoseris glauca	-	-	3	-	-	-	2	-	.01	-
F	Allium acuminatum	b23	a-	a-	b9	9	-	-	7	-	.04
F	Antennaria rosea	-	-	3	7	-	-	1	4	.03	.07
F	Arabis spp.	-	-	6	3	-	-	3	1	.01	.03
F	Astragalus beckwithii	-	-	2	-	-	-	1	-	.00	-
F	Astragalus spp.	-	-	3	-	-	-	1	-	.00	-
F	Astragalus utahensis	-	2	6	7	-	1	4	4	.07	.04
F	Balsamorhiza hookeri	-	-	2	-	-	-	2	-	.18	-
F	Calochortus nuttallii	-	3	-	-	-	1	-	-	-	-
F	Chaenactis douglasii	a10	a4	b32	a5	4	2	11	3	.08	.01
F	Cryptantha spp.	a-	a5	b44	a-	-	4	18	-	.19	-
F	Cymopterus longipes	b53	ab55	a23	ab28	24	25	13	15	.06	.22
F	Delphinium nuttallianum	b17	a-	a-	a-	9	-	-	-	-	-
F	Descurainia pinnata (a)	-	-	a3	b41	-	-	1	25	.00	.15
F	Eriogonum caespitosum	a2	b16	a3	a-	1	9	1	-	.00	-

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
F	Eriogonum cernuum (a)	-	-	$_{b}$21	$_{a}$6	-	-	8	2	.06	.03
F	Erigeron pumilus	-	-	-	1	-	-	-	1	-	.00
F	Gilia spp. (a)	-	-	13	5	-	-	6	2	.05	.01
F	Lappula occidentalis (a)	-	-	17	11	-	-	8	6	.09	.03
F	Lepidium perfoliatum	-	-	4	-	-	-	2	-	.03	-
F	Machaeranthera spp	-	-	4	-	-	-	3	-	.07	-
F	Navarretia intertexta (a)	-	-	4	-	-	-	2	-	.01	-
F	Pedicularis centranthera	-	-	-	7	-	-	-	3	-	.33
F	Penstemon spp.	-	1	-	-	-	1	-	-	-	-
F	Phlox hoodii	$_{a}$27	$_{b}$51	$_{ab}$36	$_{a}$30	12	24	17	15	.77	.97
F	Phlox longifolia	$_{ab}$48	$_{b}$66	$_{ab}$57	$_{a}$33	22	32	26	14	.18	.09
F	Polygonum douglasii (a)	-	-	4	-	-	-	2	-	.01	-
F	Ranunculus testiculatus (a)	-	-	$_{a}$9	$_{b}$69	-	-	3	27	.01	.23
F	Sisymbrium altissimum (a)	-	-	3	-	-	-	1	-	.03	-
F	Streptanthus cordatus	8	4	-	-	3	1	-	-	-	-
F	Zigadenus paniculatus	-	-	-	2	-	-	-	2	-	.01
Total for Annual Forbs		0	0	74	132	0	0	31	62	0.28	0.45
Total for Perennial Forbs		188	207	228	132	84	100	105	69	1.72	1.84
Total for Forbs		188	207	302	264	84	100	136	131	2.00	2.30

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --
Herd unit 01 , Study no: 2

Type	Species	Strip Frequency '96	Strip Frequency '01	Average Cover % '96	Average Cover % '01
B	Artemisia tridentata wyomingensis	90	88	14.07	18.53
B	Chrysothamnus nauseosus consimilis	2	1	-	-
B	Chrysothamnus viscidiflorus stenophyllus	81	64	5.62	3.02
B	Juniperus osteosperma	8	7	2.50	1.51
B	Leptodactylon pungens	31	32	2.04	2.83
B	Opuntia spp.	8	3	.21	.06
Total for Browse		220	195	24.47	25.96

CANOPY COVER --
Herd unit 01 , Study no: 2

Species	Percent Cover '96	Percent Cover '01
Juniperus osteosperma	4	7

Point-Quarter Tree Data

Trees per Acre '96	Trees per Acre '01
55	56

Average diameter (in) '96	Average diameter (in) '01
3.9	7.8

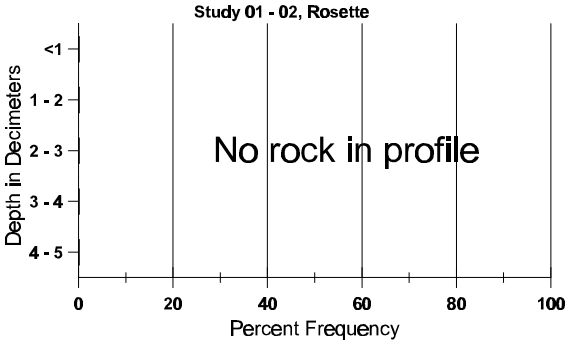
BASIC COVER --
Herd unit 01 , Study no: 2

Cover Type	Nested Frequency '96	Nested Frequency '01	Average Cover % '84	Average Cover % '90	Average Cover % '96	Average Cover % '01
Vegetation	349	342	4.25	8.25	35.01	42.59
Rock	161	53	0	.50	1.20	.37
Pavement	277	215	9.25	4.00	4.63	3.88
Litter	391	364	37.25	26.25	39.15	38.11
Cryptogams	155	80	7.25	11.50	4.57	2.85
Bare Ground	269	273	42.00	49.50	22.06	28.75

SOIL ANALYSIS DATA --
Herd Unit 01, Study no: 02, Rosette

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
15.3	63.8 (13.6)	7.3	46.6	25.4	28.0	1.5	7.2	236.8	.72

Stoniness Index



PELLET GROUP FREQUENCY --
Herd unit 01 , Study no: 2

Type	Quadrat Frequency		Pellet Transect	
			Pellet Groups per Acre	Days Use per Acre (ha)
	'96	'01	⍰01	⍰01
Rabbit	19	6	122	N/A
Deer	21	11	339	26 (65)

BROWSE CHARACTERISTICS --
Herd unit 01 , Study no: 2

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia nova																		
M	84	-	1	-	-	-	-	-	-	-	1	-	-	-	66	10	10	1
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'84	100%	00%	00%
'90	00%	00%	00%
'96	00%	00%	00%
'01	00%	00%	00%

Total Plants/Acre (excluding Dead & Seedlings)			%Change
	'84	66	Dec: -
	'90	0	-
	'96	0	-
	'01	0	-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata wyomingensis																		
S	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	96	131	-	-	-	-	-	-	-	-	131	-	-	-	2620			131
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
Y	84	2	1	6	-	-	-	-	-	-	7	-	2	-	600			9
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	151	-	-	1	-	-	-	-	-	152	-	-	-	3040			152
	01	59	-	-	1	-	-	1	-	-	61	-	-	-	1220			61
M	84	5	26	33	-	-	-	-	-	-	60	-	4	-	4266	19	20	64
	90	11	1	1	-	-	-	-	-	-	13	-	-	-	866	27	28	13
	96	35	29	-	2	-	-	-	-	-	66	-	-	-	1320	25	37	66
	01	157	-	-	3	-	-	-	-	-	160	-	-	-	3200	22	27	160
D	84	-	12	10	-	-	-	-	-	-	8	-	10	4	1466			22
	90	32	7	5	-	-	-	-	-	-	23	5	12	4	2933			44
	96	52	38	-	-	-	-	-	-	-	62	-	-	28	1800			90
	01	45	3	-	-	-	-	-	-	-	29	-	-	19	960			48
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	1780			89
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	1520			76

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	41%	52%	21%	-40%
'90	14%	11%	28%	+38%
'96	22%	00%	09%	-13%
'01	01%	00%	07%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	6332	Dec:	23%
	'90	3799		77%
	'96	6160		29%
	'01	5380		18%

Atriplex canescens																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	13	11	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	00%	
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	0	Dec:	-
	'90	0		-
	'96	0		-
	'01	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus nauseosus consimilis																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	2	-	-	-	-	-	-	-	-	2	-	-	-	40	17	19	2
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	1	-	-	-	-	-	1	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	00%	-50%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'84	0	Dec:		0%
'90	0			0%
'96	40			0%
'01	20			100%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus viscidiflorus stenophyllus																		
S	84	6	-	-	-	-	-	-	-	-	6	-	-	-	400			6
	90	2	2	-	3	-	-	-	-	-	7	-	-	-	466			7
	96	80	-	-	3	-	-	-	-	-	83	-	-	-	1660			83
	01	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
Y	84	5	3	-	-	-	-	-	-	-	7	-	1	-	533			8
	90	18	1	-	-	-	-	-	-	-	17	1	1	-	1266			19
	96	59	-	-	-	-	-	-	-	-	59	-	-	-	1180			59
	01	18	-	-	-	-	-	-	-	-	18	-	-	-	360			18
M	84	11	21	1	-	-	-	-	-	-	31	-	2	-	2200	7	13	33
	90	15	2	4	1	-	-	-	-	-	20	2	-	-	1466	9	8	22
	96	192	2	-	30	-	-	6	-	-	230	-	-	-	4600	11	18	230
	01	88	-	-	11	-	-	-	-	-	99	-	-	-	1980	10	14	99
D	84	-	10	1	-	-	-	-	-	-	6	-	5	-	733			11
	90	9	2	7	4	-	-	-	-	-	18	-	2	2	1466			22
	96	1	5	-	-	-	-	-	-	-	5	-	-	1	120			6
	01	36	-	-	5	-	-	-	-	-	40	-	-	1	820			41
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	540			27

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	65%	04%	15%	+17%
'90	08%	17%	08%	+29%
'96	02%	00%	.33%	-46%
'01	00%	00%	.63%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	3466	Dec:	21%
	'90	4198		35%
	'96	5900		2%
	'01	3160		26%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Juniperus osteosperma																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	1	-	-	-	-	-	1	-	-	-	66			1
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	1	-	-	1	-	-	-	20			1
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	5	-	-	-	-	-	-	-	-	5	-	-	-	100	-	-	5
	01	2	-	-	-	-	-	-	2	-	4	-	-	-	80	-	-	4

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	00%	-13%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	0	Dec:	-
	'90	0		-
	'96	160		-
	'01	140		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Leptodactylon pungens																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	2	-	-	-	-	-	-	-	-	2	-	-	-	133			2
	96	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	3	-	-	2	-	-	-	-	-	5	-	-	-	333			5
	96	13	-	-	-	-	-	-	-	-	13	-	-	-	260			13
	01	9	-	-	3	-	-	-	-	-	12	-	-	-	240			12
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	1	-	-	-	-	-	1	-	-	-	66	5	5	1
	96	96	-	-	16	-	-	-	-	-	112	-	-	-	2240	12	15	112
	01	95	-	-	19	-	-	-	-	-	114	-	-	-	2280	7	8	114
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	1	-	-	-	-	-	1	-	-	-	66			1
	96	1	-	-	-	-	-	-	-	-	-	-	-	1	20			1
	01	4	-	-	3	-	-	-	-	-	6	-	-	1	140			7

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	+82%
'96	00%	00%	.79%	+ 5%
'01	00%	00%	.75%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	0	Dec:	0%
	'90	465		14%
	'96	2520		1%
	'01	2660		5%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Opuntia spp.																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66	6	4	1
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66	6	10	1
	96	6	-	-	-	-	-	-	-	-	6	-	-	-	120	4	12	6
	01	5	-	-	2	-	-	-	-	-	7	-	-	-	140	-	-	7
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	+ 0%
'90	00%	00%	00%	+59%
'96	00%	00%	00%	-13%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	66	Dec:	0%
	'90	66		0%
	'96	160		13%
	'01	140		0%

Pinus edulis

S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	00%	
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	0	Dec:	-
	'90	0		-
	'96	0		-
	'01	0		-